APPENDIX 6:

GOVERNMENT OF THE DISTRICT OF COLUMBIA
OFFICE OF THE CHIEF MEDICAL EXAMINER
1910 Massachusetts Avenue, S.E., Bldg. 27
Washington, D.C. 20003

Telephone: 202-698-9001 Fax: 202-698-9101

28 July 2003

Charles C. Maddox, Esq., Inspector General
Office of the Inspector general
717 14th St., NW
Washington, DC 20005

Dear Mr. Maddox:

I am responding to Management Alert Report MAR 03-I-005 regarding radiographic (X-ray) equipment at the Office of the Chief Medical Examiner (OCME).

I acknowledge that the MAR addresses an important issue, revealing deficiencies which are being rectified. I am further concerned that some portions of the MAR do not fairly state the current practices or conditions, or their implications for workplace risk.

The first paragraph in the "Background" section frames the issue by stating that the inspection team "...observed what appeared to be safety and health hazards in the use of radiographic equipment by OCME employees....Radiographic equipment is located in a separate room in the autopsy suite in the basement of the OCME building, and employees entering this area *may be exposed to some level of radiation* if the machines are in use." (Emphasis added.) The very phrase "may be exposed to some level of radiation" does not distinguish between a potentially lethal exposure and the background radiation to which we are all exposed constantly. In fact, the team identified deficiencies in documentation of the monitoring for exposure, which is certainly significant. The team did not identify actual exposures, hazards, equipment defects or personnel practices that would indicate a significant risk of excessive radiation exposure or risk of harm. Various features of the infrastructure that affect and mitigate the concerns raised in the MAR were also not recognized.

First, I shall address the issue concerning monitoring for radiation exposure, since this is the most significant deficiency identified in the MAR. I cannot explain the unavailability of the monitoring reports for the years 2000-2003, inclusive. We are currently searching several OCME offices and files to try to locate these, and if they are not found, we will obtain duplicate reports from the monitoring company, which will then be available for review by OIG and the Office of Risk Management (ORM). (I caution against reliance on 1999 data to assess the current situation; especially see below regarding renovations.) It is true that OCME was not always rigorous in collecting and replacing all badges monthly, as required. It is not true that until the relatively recent appointment of an Agency Risk Management Representative (ARMR)

no employee had been designated to ensure this function. The employee originally designated (a photographer) left the agency. This function was then assumed by the Mortuary Supervisor, who supervises both the physical area and many of the affected employees related to the X-ray equipment and producing radiographs. He assures me that he is changing and sending the badges monthly, and that this practice has become more rigorous and routine under his supervision. The issue of storing the badges in the autopsy suite (but not inside the X-ray room itself) is unlikely to expose the badges spuriously, but we will arrange a location outside the autopsy room door that is accessible and convenient. Radiation control is also an active issue in the OCME Risk Assessment and Control Committee (RACC), with attention from both the Mortuary Supervisor and the ARMR, who chairs the RACC. In that venue, draft policies have already been written to address radiation control issues, which will be submitted to me for final editing and adoption. The policies will cover both use and storage of the badges, and instruction will be provided to all affected employees on these topics. (The assertion attributed to OCME staff that they have never been instructed in the use of the badges is not accurate, in that I gave such instructions to mortuary staff myself.) To reiterate, what is absent is the documentation of the monthly exposure reports. Every effort will be made to obtain past documentation, and future results will be filed and used properly.

The next issue concerns inspection of the radiographic equipment, with the MAR noting that the OCME equipment has never been inspected. The observation cites 20 DCMR 2103.10, purporting to address periodic inspection of radiation devices. The section quoted in the MAR refers to re-testing of devices somewhere between six month and three year intervals (without specifying criteria). (My research reveals 20 DCMR 2103.10 to consist in its entirety of: "The requirements of this section shall supplement the requirements for the posting of warning signs pursuant to DCMR Title 12D, *Fire Prevention Code Supplement*, and the *BOCA National Fire Prevention Code*." in reference to posting "No Smoking" signs. 22 DCMR 6803.10 referred to in the footnote is not yet codified.) It is not clear from this what exactly are the requirements for periodic testing or inspection of the type of equipment at OCME, and whether its application (for postmortem studies) influences those requirements. (While there is concern for radiation exposure to the equipment operators, aspects of the environment/infrastructure and operational practices are more germane to operator protection than is the functioning of the equipment. A significant part of the controls over equipment function in clinical practice relates to protecting the live patient being subjected to the radiation.)

In regard to the equipment and infrastructure of the radiographic equipment at OCME, please bear in mind that virtually the entire OCME facility has been renovated within the past three years. The autopsy suite, including the X-ray room, was renovated. This included the installation of entirely new X-ray equipment, which has been in use for a little over a year. Therefore, it may not have even reached the point of mandated testing. During this interval, the Mortuary Supervisor has accessed services from the installing company and a radiographic equipment servicing company, to assess the equipment and its function; this equipment is functioning properly. (Admittedly, this does not necessarily substitute for a government inspection if mandated, but it is not reasonable to state that this equipment has never been tested or assessed for function or safety.) The purposes of these assessments included not only safety and function of the equipment, but also improving image results and providing practice guidelines for our operators. What is also not mentioned in the MAR is that the X-ray room is

configured and the equipment installed such that the operator is standing behind a radiation shield when actually exposing the image (which is a momentary event), providing protection in the event that the machine delivers too much radiation or if the beam is not properly aimed or "focused." The room itself is shielded to prevent radiation from escaping. The operators also wear lead-lined aprons for personal protection. The MAR refers to "Kevlar vests used for protection during x-rays (which) are old, torn, and leaking threads and fibers." (Kevlar vests are those resistant to penetration by projectiles, commonly called flak jackets or "bullet-proof vests," which do not relate to radiography.) The lead-lined aprons at OCME were beginning to deteriorate, but loss of a few threads does not affect their ability to protect. They have been replaced with intact ones since the problem was brought to the attention of the Mortuary Supervisor.

The third major issue concerns training and "certification" of the technicians operating the radiographic equipment. After installation of the new equipment, a representative of the manufacturer came to OCME to instruct the staff on its use. No formal training courses for radiologic technician skills have been made available to these employees. Some of the autopsy technicians do have substantial experience in taking radiographs, and between them and the Mortuary Supervisor, technicians have been given on-the-job training. The observation that OCME does not have a certified radiologist is accurate, but beside the point. A radiologist is a physician who specializes in the interpretation of imaging studies. We do not need a radiologist to provide technical training. OCME will investigate availability of training courses for the technicians, who do not need to be certified in any way to perform this function. Finally, the statement in the MAR that OCME employees "do not know how much radiation exposure to use when conducting radiographs, and they experiment with the process on a case-by-case basis" is misleading, at best. Tables with exposure guidelines are present in the X-ray room. In postmortem radiography, it is frequent that recommended techniques do not work ideally under conditions commonly encountered. Repeating images with varied technique to capture the right area or to highlight the important features is fairly common. Given that there is no exposure risk to the subject (unlike clinical radiography, where you must limit exposure to the live patient), this poses no problem. It is also unfair to characterize this as "experimenting," with the connotations that has for what we do with the decedents we examine.

I believe that the above has largely answered the concerns raised in the MAR, and what corrective actions have been effected or are planned to rectify any deficiencies. I shall therefore briefly address the recommendations.

1. This recommends testing employees for possible over-exposure to radiation. Given the controls detailed above, and lacking any clinical indicators of radiation-related illness, there is no testing that we could provide. (The premise of the recommendation is flawed, in consideration of the above responses.)
2. Regarding equipment inspection, when the criteria are specified, inspection and certification will be conducted as required and necessary. Provision of complete, relevant and current regulations by OIG will assist OCME in achieving this successfully.
3. Monthly monitoring is being conducted. Documentation will be provided, and attention will be focused on this procedure to ensure that it is done and used properly.

4. OCME will attempt to find appropriate training, if it is available. More formalized on-the-job training will be created and given. I am not aware of any certification that pertains, but if any exists, this will also be pursued.
5. Written policies and procedures are already being drafted through the RACC. I will request that this group expedite completion of this task, so I can move to implementation.
6. As stated, a search is being conducted for these reports. Whatever is found will be shared, and those that cannot be found will be sought from the monitoring company.

Thank you for the opportunity to respond to this MAR. Radiation control and safety is an important issue, and I hope that this response reflects the weight accorded to it in OCME.

If I can be of any further assistance, please contact me.

Sincerely,

Jonathan L. Arden, MD
Chief Medical Examiner

cc: Mr. John Koskinen, City Administrator
Ms. Margret N. Kellems, Deputy Mayor for Public Safety and Justice
Mr. James Jacobs, Director, Office of Risk Management
[redacted]